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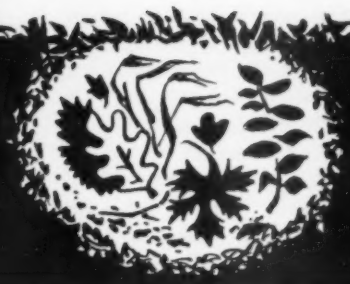

the COMPOST PILE

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One of the problems of the home gardener is to maintain the organic content of the soil with which he works. In large scale farming operations, crop residues are returned to the soil by plowing under cover crops and animal manures and by crop rotations including nitrogen-fixing legumes. It is well known that the greatest benefit to the soil is secured by returning crop residues to it as quickly as possible, before they are decayed or leached in any composting process.

For the home gardener, however, turning under roughage is difficult, animal manures are expensive or unavailable, and the cost of peat and other organic materials in commerce is often greater than the home gardener cares to pay. For these reasons, the compost pile has a place, provided of course, that there is enough organic roughage available to make composting worth while and that the labor is regarded as exercise or has hobby interest.

The value of organic matter in the soil is unquestioned. It improves soil tilth by the aggregation of the soil particles, increases the water holding capacity of the soil, and through its decay, releases nitrogen and other nutrients for plant use. Carbon dioxide from decaying materials helps bring minerals into solution, making them available to plants. These are only a few of the primary and secondary benefits of organic matter in the soil. In this discussion no distinction is made between humus, a relatively stable organic constituent of soils, which can be modified only slowly, and crop residues in various stages of decomposition, which together with humus form the organic soil ingredients that give the beneficial effects.

Practically any plant material can

be composted for garden use. Leaves are ideal for the purpose, but old sod, lawn clippings, straw, and plant refuse from the vegetable garden or the kitchen can be used. Often additional leaves can be secured from neighbors who do not use them or from street sweepings. If manure is available, it may be composted also.

The purpose of composting plant refuse is to reduce it to a physical condition that can be easily handled and that will not be unsightly when used in the garden. Composting is essentially a disintegration process in which the structure of the organic materials is broken down by decay caused by the action of bacteria and fungi with a considerable loss of bulk. To set up conditions under which bacteria and fungi will work most rapidly, the composting material should be kept moist and supplied with fertilizer, particularly nitrogen, which furnishes the decay-causing organisms with the nutrients they need for rapid growth. These organisms are usually present in the waste material.

Building a compost pile is not an exact process. The usual practice is to accumulate the organic material in some out-of-the-way corner of the garden or other inconspicuous place. It can be built on open ground or in a bin made of rough boards or of stakes and chicken wire. The sides of the bin should not be tight. A convenient time for making a compost pile is in the fall when the leaves are being collected from the lawn and the fall garden clean up is done. In starting the pile a part of the plant refuse is spread out in a layer about 6 inches deep. The size of the pile should be planned so that at least four or five layers can be made from the material available. A commercial fertilizer of some readily available formula such as 10-10-10, 10-20-10 or 10-6-4 is spread on each layer at the rate of about ½ pound or 1 cupful to each 10 square feet. This promotes decay and makes the resulting compost more valuable. If alkaline compost is wanted, ground limestone can be spread on the pile at the same rate. Sprinkling a few shovelfuls of garden soil over each layer will make sure that decay organisms are present.

The organic material should be thoroughly moistened, using a hose or any other convenient method. Successive layers are built in this way until all the plant refuse is used up. Building the pile with a flat top which slants toward the center to catch rainfall has an advantage. Decay will not take place rapidly until the weather warms up in the spring and summer. In midsummer, decay can be hastened by forking over the pile and supplying moisture to parts which have remained dry. It is quite likely that the compost will be ready for use at the end of the first summer season. For a continuing supply of compost, a pile can be built every year. The resulting compost can be used as a mulch, incorporated in flower beds, dug into the vegetable garden, or used in any way that peat or rotted manure would be used.

Because the compost pile may harbor plant diseases and insects, obviously infested materials should be avoided.

A few of these are iris leaves if iris borers are a problem, peony tops if infected with botrytis blight, refuse from cabbage or other crucifers if club root is present, or corn stalks if infested with corn borers. Such infested materials should be burned when they are removed from the garden. When properly prepared and thoroughly decayed, it is not likely that the compost pile will harbor diseases and insects.

If the compost is to be used on restricted areas in which an attempt is made to control plant diseases, or if the material is incorporated with potting or other soils to be used for raising seedlings, soil disinfestation is recommended. Directions supplied by the Department of Plant Pathology for a practical method of soil disinfestation for seed flats are as follows: commercial formalin (40% formaldehyde) is used at the rate of 2½ tablespoonfuls per bushel of soil or 1 tablespoon for each 20 by 14 by 3 inch flat. Mix the formalin with 5 or 6 parts of water, sprinkle over the soil and thoroughly mix again. Place the treated soil in flats and let stand for 24 hours before planting the seeds. After the seeds are sown, water thoroughly. This method should not be used with heavy clay soils but can be used with compost, particularly if it has been mixed with sand.

Any discussion of the compost pile would not be complete without some reference to organic gardening. This term receives considerable publicity through the mails and in certain magazines. Insofar as organic gardening calls attention to the need for organic matter in soils, to its conservation and to soil conservation in general, it is to be commended. Promotion of a well-balanced diet including vegetables and whole grains is also to the credit of organic gardening. However, where fallacies and half-truths resulting from unreliable interpretation of data or lack of adequate data are presented to the public, much of the value of the publicity is lost. Some of the practices advocated are unnecessary, expensive and misleading. Some of the gadgets that are devised and sold are unnecessary and are not worth their cost. There is nothing occult about building a compost pile and some of the con coctions offered for sale as wonder working composting aids are nothing short of ridiculous.

One of the fallacies promoted by the organic gardeners is that the organic gardening method of composting material will solve the problems of world food production. Composting is a limited and expensive operation and

cannot be relied upon to furnish economically the organic matter needed in soils over large areas. Crop rotations used in combination with chemical fertilizers are an essential part of maintaining the organic matter content of large soil areas. A second fallacy is the claim that an element necessary for plant growth is different in any essential way when derived from organic material than when it is derived from any other source. With few exceptions, the organic forms of elements must be reduced to some soluble inorganic form before they can be absorbed by plants again.

In organic gardening literature great stress is laid on the claim that vegetables and other food products that have been fertilized with inorganic chemical fertilizers are in some way harmful to human health as compared with those in which the same elements were supplied from composted or other organic materials. This is an exceedingly difficult thing to prove and so far, in spite of much scientific work, there have been no results which show that it is true. Certainly there is not enough evidence to warrant payment of excessive prices for organic fertilizers or for foods which have been fertilized in the "organic" way.

Perhaps the most damaging aspects of organic gardening are the implied claims that organic fertilizers can prevent both insect damage to crops and diseased conditions in plants, animals and human beings. This is particularly damaging when it is implied that organically fertilized foods will control cancer or any one of a dozen other diseases that are mentioned in the organic gardening literature. This does not mean that there may not be a sound relationship between diet and these diseases, and in so far as a balanced, wholesome diet is advocated, no harm is done. However, when persons are led to believe that cancer can be cured by the use of organically fertilized food products instead of inorganically fertilized food products, damage may be done by causing people to neglect to seek the medical aid that is available and which they may need.

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